

In re Patent Application of:
GOLDSTEIN
Serial No. 10/060,497
Filing Date: **JANUARY 30, 2002**

REMARKS

The Examiner is thanked for the thorough examination of the present application, and for the courtesies extended to the undersigned attorney during the telephonic interview on August 26, 2003. During the interview, the rejection of the claims based upon Jeon in view of Vail et al. was discussed. In particular, the undersigned attorney argued that the Jeon reference is directed to a circularly polarized dipole antenna, and that such an antenna is significantly different from the claimed phased array antenna. Moreover, it was also argued that to combine elements of a phased array antenna, such as the one disclosed in Vail et al., with the dipole antenna of Jeon would completely change the principle of operation of the Jeon dipole antenna, and render it unsatisfactory for its intended purpose.

To expedite prosecution, the undersigned attorney proposed amending independent Claims 1, 12, and 18 to further highlight the distinctions between the claimed phased array antennas and related methods and the dipole antenna of Jeon. Based upon the arguments presented during the interview, the Examiner indicated that with such amendments the independent claims would most likely be allowable. However, the Examiner requested that these changes be made in a formal written amendment including the arguments made during the interview for her further consideration.

As such, independent Claims 1, 12, and 18 are being amended to include the subject matter of Claim 9. That is, these

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claims have been amended to recite at least one controller that cooperates with the phased array antenna elements to provide beam steering. In view of these amendments and the arguments presented in detail below, it is submitted that all of the claims are patentable.

I. The Claimed Invention

The present invention is directed to a phased array antenna. As recited in amended independent Claim 1, for example, the phased array antenna includes a substrate and a plurality of spaced apart phased array antenna elements carried by the substrate. Moreover, the phased array antenna elements are arranged along an imaginary Archimedean spiral. More particularly, the phased array antenna also includes at least one controller that cooperates with the plurality of phased array antenna elements to provide beam steering.

Independent Claim 12 is directed to a similar phased array antenna, and independent Claim 18 is directed to a related method for making a phased array antenna. Each of these claims has been amended similarly to Claim 1 to recite at least one controller that cooperates with the phased array antenna elements to provide beam steering.

II. The Claims Are Patentable

The Examiner rejected independent Claims 1 and 18 over Jeon (U.S. Patent No. 5,327,146), and independent Claim 12 was

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rejected over Jeon in view of Vail et al. (U.S. Patent No. 6,522,294). In particular, Jeon is directed to a dipole array antenna which includes a conducting substrate, a feeder layer, and a dipole layer. The feeder layer is spirally formed by etching a first thin film on the dielectric layer. The feeder layer is placed on a conducting substrate, and a connector is attached to the feeder layer. The dipole layer is placed on a second dielectric layer deposited on the feeder layer to prevent energy loss from the feeder layer by etching a second thin film.

The Examiner contends that it would have been obvious to one of ordinary skill in the art to combine the teachings of Vail et al., which is directed to a phased array antenna, with those of Jeon to produce the claimed invention. It is respectfully submitted that a prima facie case of obviousness for combining the prior art as proposed by the Examiner has not been met, as there is no suggestion or motivation provided by the prior art for making such a selective combination. Indeed, there can be no such motivation because to modify the dipole antenna of Jeon as proposed by the Examiner would completely change the principle of operation thereof, as well as rendering this dipole antenna unsatisfactory for its intended purpose.

More particularly, as the field of the invention clearly sets forth, Jeon is directed to a circularly polarized dipole array antenna for receiving signals from satellites. That is, this antenna is only capable of producing a fixed, circularly polarized boresight beam. However, the above-noted independent

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claims have been amended to recite phased array antennas and a related method for making the same which include at least one controller that cooperates with the phased array antenna elements to provide beam steering. In stark contrast, the feeder structure of Jeon is not appropriate for such phased array antenna applications, as this structure provides no capability for electrically steering an antenna beam. In particular, the spiral feeder structure of Jeon is a continuous conductor formed beneath all of the dipole element pairs thereof (see FIGS. 3 and 6 of Jeon). Such a feeder structure would not allow for individual phasing of antenna elements to provide beam steering. Yet, to remove this feeder structure would completely change the principle of operation of the Jeon dipole antenna, as well as rendering it unsatisfactory for its intended purpose (i.e., to provide a circularly polarized dipole array antenna).

Accordingly, it is submitted that independent Claims 1, 12, and 18 are patentable over the prior art. Their respective dependent claims, which recite yet further distinguishing features, are also patentable over the prior art and require no further discussion herein.

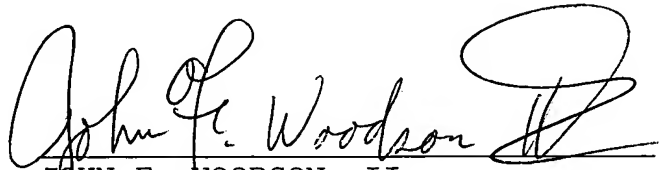
CONCLUSIONS

In view of the amendments and arguments presented above, it is submitted that all of the claims are patentable. Accordingly, a Notice of Allowance is respectfully requested in due course. Should any minor informalities need to be addressed,

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Serial No. 10/060,497
Filing Date: **JANUARY 30, 2002**
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the Examiner is encouraged to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



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